

**Environmental Assessment
and Final Finding of No Significant Impact**

for

***Lantirn Village & Camera I Site Upgrades
Fort Wainwright Yukon Training Area
Fort Wainwright, Alaska***

**354th Fighter Wing
Eielson Air Force Base, Alaska
August 2009**

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FINAL FINDING OF NO SIGNIFICANT IMPACT (FONSI)
for
Lantirn Village & Camera I Site Upgrades
Fort Wainwright Yukon Training Area
Fort Wainwright, Alaska

Introduction

The U.S. Air Force (USAF) is proposing to upgrade the Weapons Scoring System (WISS) at the Lantirn Village and Camera I sites within the Stuart Creek Impact Area located in the U.S. Army Garrison – Alaska's (USAG-FWA) YTA. These military training lands lie northeast of Eielson Air Force Base, Alaska. The proposed upgrade would give the Air Force live bomb drop scoring capability with multiple-angle coverage of the Stuart Creek Impact Area providing enhanced proficiency training to fighter pilots.

Proposed Action

The proposed action would require the installation of two 40' towers and associated camera scoring equipment at existing facilities located in uplands. Approximately 0.63 acres of vegetation and 10 cubic yards of soils would be disturbed with the construction of the tower bases and clearing of vegetation for wildfire protection.

Alternative 1

Alternative 1 would install WISS equipment on existing tower at Camera II site. There would be no disturbance to vegetation under this alternative.

No Action Alternative

Under the no action alternative, there would be no changes or modifications to the existing WISS facilities.

Environmental Impacts of the Proposed Action

Wetlands/Vegetation

There would be no impacts to wetlands. The proposed action would result in the loss of 0.63 acres of upland vegetation. The overall impact is expected to be minor.

Fish and Wildlife

None of the activities associated with the proposed action will likely result in impacts to fishery resources. Some wildlife may be temporarily displaced to adjacent areas during

construction. The overall impact to fish and wildlife from the proposed action is expected to be minor.

Historical or Cultural Resources

Cultural Resource Surveys are not required for impact areas. However, previous studies indicate a low likelihood for cultural resources. In the event that historic or cultural sites are discovered during range construction or routine operation and the activities pose a threat to the site, activities will be halted and a professional archeologist will be brought in to evaluate the find.

Mitigation

Standard best management practices have been incorporated into the project design to mitigate impacts to the environment. These include minimizing tower height and avoiding construction to the greatest extent possible as well as implementing various other measures from 1 May through 15 July, inclusive of these dates.

Activities during construction must comply with the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act. This project would not result in intentional removal or "intentional take" of a migratory bird or an active nest. However, there is a low probability that this project may inadvertently cause accidental or "incidental take" of migratory birds. This project is allowed "incidental take" as authorized by the Defense Authorization Act of 2003 because it meets the definition of a military readiness activity as defined by the DOD MBTA Final Rule (30 March 2007). Although "incidental take" is authorized for this project, the following measures will be implemented as required by the DOD MBTA Final Rule and a Memorandum of Understanding (MOU) between DOD and USFWS to reduce the risk of "take"; however, not at the expense of diminishing the military readiness activity:

1. This project will to the greatest extent practicable avoid clearing vegetation during the USFWS Region 7 guidelines for south-central and interior Alaska (1 May through 15 July) as described in the 2007-2011 USAG Alaska INRMP. Every practicable attempt will be made to begin vegetation clearing activities prior to 1 May.
2. During the delineation of the project site boundaries, any visible migratory bird or eagle nests, including ground nests, will be flagged or otherwise identified so the equipment operator can avoid disturbing the vegetation holding the nest.
3. Immediately prior to clearing, the area will be resurveyed to locate any migratory birds, bald or golden eagles or their nests. Any active nest locations will be flagged or otherwise identified to the equipment operator for avoidance.
4. During clearing the equipment operator will pay attention and avoid any visible nests or birds.

Public Comment

No public comment was received from the public noticing of the EA/FONSI for this project.

Subsistence Practices

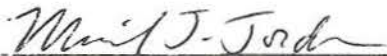
Section 810 of the Alaska National Interest Lands Conservation Act (16 USC § 3120) requires the federal agency with the primary management jurisdiction over the land to consider the potential impact of the planned use on subsistence practices. The analysis provided in the environmental assessment (EA) shows that the proposed action would not unnecessarily impair rural subsistence practices.

Procedural Requirements

Findings

Pursuant to the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality implementing regulations for NEPA (40 CFR Part 1500-1508), Environmental Analysis of Army Actions (32 CFR Part 651), Air Force Instruction 32-7061, and Environmental Impact Analysis Process (32 CFR Part 989), the Air Force has conducted an EA for the installation of new equipment at two existing sites in the Stuart Creek Range in the YTA. This FONSI has been developed pursuant to information provided in the accompanying EA.

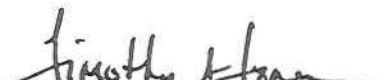
Finding Of No Significant Impact: Based on the accompanying environmental assessment (EA) which was conducted in accordance with the requirements of the National Environmental Policy Act, the Council on Environmental Quality, Environmental Analysis of Army Actions (32 CFR Part 651), and Air Force Instructions, I conclude that the installation of new equipment at two existing sites in the Stuart Creek Range in the YTA will not result in significant impacts to the environment and that preparation of an environmental impact statement is not warranted.



MICHAEL J. JORDAN
Colonel, USAF
Commander



Date



TIMOTHY A. JONES
Colonel, AF
Commanding



Date

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**Environmental Assessment
for
Lantirn Village & Camera I Site Upgrades
Fort Wainwright Yukon Training Area
Fort Wainwright, Alaska**

1.0 Purpose and Need for Action

Section 1.0 provides a description of the purpose and need for the proposed action.

1.1 Background and Objectives for the Proposed Action

1.1.1 The United States Air Force (USAF) is proposing to upgrade the electronic scoring system by providing live bomb scoring capability of the Stuart Creek Impact Area located within the USAG-FWA Yukon Training Area northeast of Eielson Air Force Base (AFB), Alaska (Figure 1-1). The existing facilities and equipment are such that there is no Weapons Impact Scoring System (WISS) available for live bomb drops in the area. The proposed upgrade would provide the USAF with live scoring capability. To achieve this goal the USAF is proposing to erect at each of two sites, Lantirn Village and Camera I, a forty-foot-tall steel tower and associated WISS equipment.

1.1.2 The Stuart Creek Impact Area is part of Restricted Area R-2205 located in the USAG-FWA's YTA (Figure 1-1). This range is used for air-to-ground military aircraft operations and is the primary tactical air-to-ground weapons range for the 11th Air Force. Although lands within the Stuart Creek Impact Area are controlled by USAG-FWA, the 11th Air Force conducts military aircraft operations in this Maneuver Area through a dual use, interservice support agreement between the USAF and the USAG-FWA.

1.1.3 The Department of Defense has identified the Stuart Creek Impact Area as one of two locations in Alaska available to the 11th Air Force for tactical air-to-ground training missions. The 11th Air Force utilizes the mock airfield for practice tactical training missions for F-16 Falcon fighters based at Eielson Air Force Base, and F-15 Eagle fighters and F-22 Raptor fighters based at Elmendorf Air Force Base. This mock airfield and the nearby mock airfield at the Oklahoma Impact Area (located in the Donnelly West Training Area) play a significant role in maintaining pilot proficiency and combat readiness for the 11th Air Force.

1.1.4 Since the closing of Clark Air Base in the Philippines, Alaska ranges have become the primary U.S. controlled tactical training areas available to Pacific Air Forces (PACAF) and U.S. allies in the Pacific. As a result, other aircraft, in addition to Alaska based aircraft, are frequently deployed to Alaska to participate in joint/combined training and Major Flying Exercises (MFE). One exercise operated annually, Cooperative RED FLAG-Alaska (RF-A), opens the range and the training opportunities up to a multinational force. This exercise gives U.S. and allied forces' pilots the opportunity to practice air combat in a coalition environment. These exercises provide tactical air-to ground training and involve fighter units from other Pacific Air Force bases, the U.S.

Navy, the U.S. Marine Corps, the U.S. Air National Guard, the U.S. Air Force Reserves, the Royal Air Force, the Royal Australian Air Force, the Royal Canadian Air Force, the Royal Singapore Air Force, Japanese Defense Forces, and other national forces.

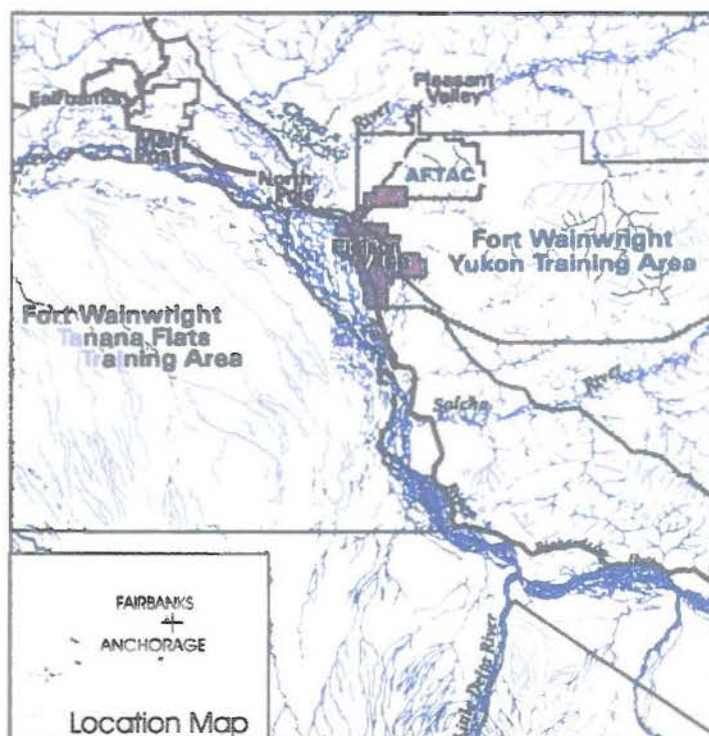


Figure 1-1 Regional Map

1.1.5 Tactical air-to-ground training involves attacking realistic ground targets under simulated combat conditions and is enhanced in the Pacific Alaskan Range Complex by the use of the Yukon Measurement Debriefing System (YMDS). This system is a computerized three-dimensional tracking and recording system that monitors real time positional and weapons data from aircraft. The data includes important information about the aircraft such as location, speed, heading, altitude, and weapons status and is used for real time combat exercise control and after mission training debriefing. The YMDS tracks and records nearly every aspect of an exercise sortie and provides pilots the opportunity to watch an electronic recreation of their air battles after the mission. Installation of the YMDS in the Pacific Alaskan Range Complex was previously addressed in the USAF Yukon Measurement and Debriefing System Environmental Assessment, June 1993.

1.1.6 The Weapons Scoring System is an integral component of the Yukon Measurement Debriefing System which optically measures miss distance of ordnance delivery relative to a specific aim-point. The proposed upgrade with the installation of the towers and WISS equipment at the two separate sites will provide coverage and scoring capabilities not currently available. The upgrades are part of a 25-year plan developed by the USAF

designed to increase the operational effectiveness of the ranges. Previous Stuart Creek Range upgrades include construction of a mock airfield, construction of simulated targets, and installation of unmanned threat emitters and advanced scoring systems (i.e. televised ordnance scoring system) for training purposes. Previous NEPA analysis for these projects includes the *Yukon Measurement and Debriefing System Environmental Assessment June 1993* and *Environmental Assessment of the Upgrade of Target Arrays on Ft. Wainwright and Ft. Greely, Alaska, 11th Air Force, 1992*.

1.1.7 The selection of a WISS site must meet the following criteria in order to satisfy USAF operational objectives:

- The site must have a clear line-of-sight to the existing target arrays;
- The site must have a clear line-of-sight to either a microwave relay tower or to a data link site; and
- The site must have road access and power.

1.1.8 The proposed locations for the towers and WISS upgrade (Lantirn Village and Camera I sites) meet the specified site criteria. Lantirn Village is a 2.45 acre site and Camera I is a 1.0 acre site. Both sites are developed and have a clear line-of-sight to the target arrays in Stuart Creek Impact Area and clean line-of-sight to the existing microwave network (Figure 1-3). Due to favorable site characteristics the USAF proposes to install the towers and associated WISS equipment at these locations.

1.2 Location of the Proposed Action

1.2.1 The proposed project is located in the Stuart Creek Impact Area within the USAG-FWA's YTA approximately 23 miles southeast of Fairbanks and 20 miles northeast of the Eielson Air Force Base. The YTA is located within the Fairbanks North Star Borough.

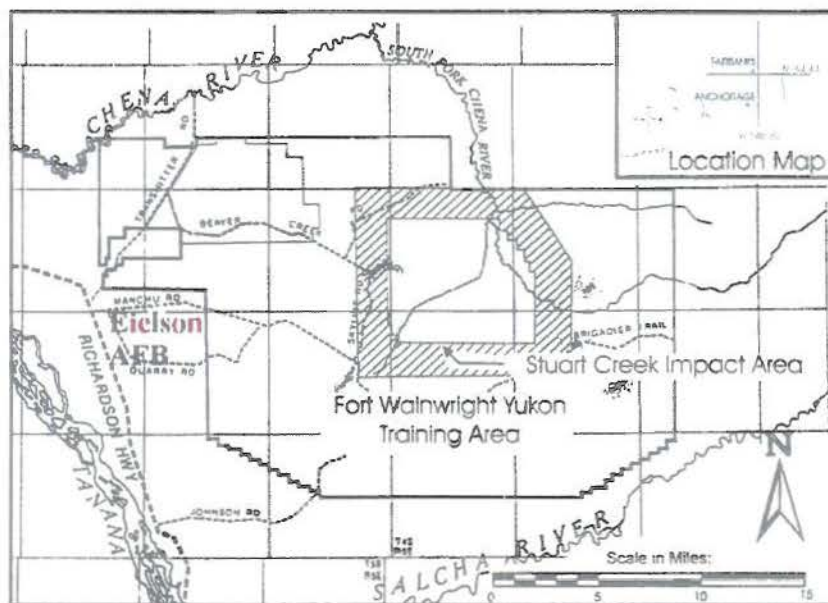


Figure 1-2 General Site Location

1.2.2 The Stuart Creek Impact Area covers approximately 22,857 acres of the north central portion of the USAG-FWA's YTA (Figure 1-2). The mock airfield and target arrays are located in the Stuart Creek Impact Area, between Stuart Creek and the South Fork of the Chena River.

1.2.3 Under the proposed action, two separate towers would be required and would be located on hilltops in the vicinity of Stuart Creek at existing facilities (Figure 1-3). Lantirn Village is located west of the Stuart Creek mock airfield in the USGS Big Delta C-6 Quad and Camera I site is located south of the mock airfield in the USGS Big Delta C-5 quad. Both sites currently have YMDS equipment and infrastructure in place.



Figure 1-3 Project Location

1.3 Decision to be Made and Decision Maker

1.3.1 As required by Environmental Analysis of Army Actions (32 CFR Part 651) and 32 CFR Part 989, the *Environmental Impact Analysis Process* will be used to determine the potential environmental consequences of installing the communication towers at Lantirn Village and Camera I sites. This EA is intended to satisfy these requirements. The proposed action and all alternatives considered will be addressed in detail in Section 2.0 of this document. A description of the resources associated with the areas affected by all alternatives is provided in Section 3.0 and the impacts that could result from each one are discussed in Section 4.0. Section 5.0 provides an analysis of cumulative impacts.

1.3.2 Based on the evaluation of impacts in the EA, a Finding Of No Significant Impact (FONSI) will be published if there is a finding of no significant environmental impacts for the proposed action. If it is determined that the proposed action will have significant

environmental impacts, other alternatives will be considered for which impacts may not reach the threshold of significance.

1.4 National Environmental Policy Act (NEPA) Actions That Influence This Assessment

1.4.1 Yukon Measurement and Debriefing System Environmental Assessment June 1993. This EA assesses the environmental consequences associated with the installation of the YMDS equipment on 24 remote hilltops in the vicinity of Eielson Air Force Base and the Yukon Military Operations Area (MOAs) in interior Alaska.

1.4.2 U.S. Army Garrison, Alaska Integrated Natural Resources Management Plan Environmental Assessment January 2007. These documents provide a series of options for resource management of the Ft. Wainwright YTA.

1.4.3 Final Legislative Environmental Impact Statement for Alaska Lands Withdrawal Renewal, January 1999. This EIS assesses the environmental consequences associated with the continued military use of U.S. Army lands and the renewal of the withdrawal of the USAG-FWA's YTA, Fort Greely West Training Area, and Fort Greely East Training Area from the public domain for military training.

1.4.4 U.S. Army Alaska Integrated Training Area Management Program Management Plan Environmental Assessment, April 2005. This EA assesses the environmental consequences associated with implementation of Integrated Training Area Management (ITAM) program on army training lands in Alaska.

1.4.5 Environmental Assessment of the Upgrade of Target Arrays on Ft. Wainwright and Ft. Greely, Alaska, 11th Air Force, 1992. This EA assesses the environmental consequences associated with establishing new target arrays on the Stuart Creek Impact Area on USAG-FWA's YTA.

1.4.6 Alaska Military Operations Areas-Environmental Impact Statement (EIS) 11th Air Force, 1995. This EIS was prepared to address the environmental impacts of restructuring the Air Force Special Use Airspace in Alaska. This document assesses several issues pertinent to the operation of Stuart Creek Impact Area, including airspace management, biological resources, recreational resources, subsistence, land use, air quality, and noise as they relate to operation of military aircraft.

1.4.7 Environmental Assessment of Major Flying Activities in Alaska (USAF, 1993b). This EIS was prepared to address the environmental impacts associated with major flying and training exercises conducted on ranges within Alaska, including the Stuart Creek Impact Area on USAG-FWA's YTA.

1.5 Project Scoping/Significant Issues

A site visit was conducted on September 3, 2008 and a scoping meeting was held at Fort Wainwright Department of Public Works, Environmental Branch offices on September 28, 2008 to identify and discuss issues considered pertinent to the proposed upgrades to

Lantirn Village and Camera I sites. Scoping participants are listed in Section 5.2. Issues raised in the scoping meeting are briefly discussed in this section and discussed in greater detail in Sections 2.0, 3.0, and 4.0.

1.5.1 *Impacts on the Physical Environment:* The construction of the towers would result in the alteration of the physical environment.

1.5.2 *Wildlife:* Concern was expressed that tower construction could result in impacts to migratory birds if construction occurred during migration period. Installation of the towers could also result in bird fatalities due to tower collisions.

1.6 Federal and State Permits or Licenses Needed to Implement the Project

1.6.1 A Land Use Permit for Lantirn Village site will need to be obtained from USAG-FWA. The Camera I site (Central Remote 4) is currently under Land Use Permit No. DACA 85-4-06-10. No other federal or state permits or licenses are required for this project.

1.6.2 The proposed sites are located in the Stuart Creek Impact Area and are therefore exempt from a cultural resource survey and subsequent Section 106 consultation letter. For safety purposes, cultural surveys are not conducted in impact areas due to potential for unexploded ordnance in the area.

2.0 Description of the Proposed Action and Alternatives

Section 2.0 provides a description of alternatives considered to achieve the purpose and need described in Section 1.0. The proposed action, alternative 1, and the no action alternative will be addressed. A summary of the environmental consequences for these alternatives will also be discussed.

2.1 Proposed Action – Install WISS Towers / Lantirn Village and Camera I Sites

2.1.1 The USAF is proposing to install 40-foot steel towers and associated WISS equipment at two separate existing facilities (Lantirn Village and Camera I sites) located within the Stuart Creek Impact Area. The proposed upgrade would give the Air Force live bomb drop scoring capability of the Stuart Creek Impact Area thereby providing enhanced proficiency training to fighter pilots.

2.1.2 Lantirn Village (Photo 2-1) and Camera I sites are currently developed as YMDS sites and have the necessary infrastructure (i.e. road access, equipment shelters, power) to accommodate the installation of the WISS.

2.1.3 The proposed action would require construction of a 10' by 10' by 2" concrete pad for the tower base at each site. A 40-foot steel tower would be installed on the pad adjacent to existing equipment shelters and secured by 3 guy wires. The scoring camera will be secured to the tower and associated WISS equipment housed in the adjoining existing shelter.

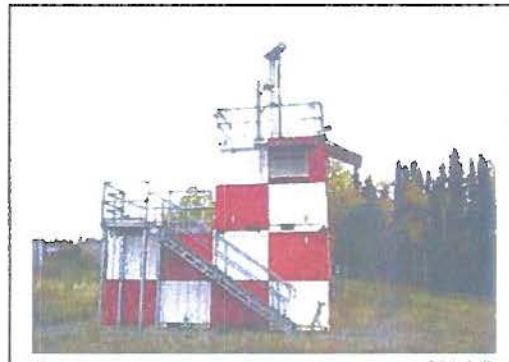


Photo 2-1 Lantirn Village

2.1.4 Approximately 100 square feet of vegetation (grasses) and 5 cubic feet of soils would be disturbed at each site during the installation of the tower and base. An additional 0.63 acres of vegetation would be disturbed with the clearing of vegetation for wildfire protection of Lantirn Village. Camera I site currently has vegetation cleared within 100 feet of all structures for wildfire protection.

2.1.5 Best management practices (BMPs) would be employed during construction to minimize impacts as follows:

- Construction would occur before May 1 and after July 15 to avoid potential disruption to migratory and nesting birds; and
- Spruce vegetation would be cleared within 100 feet of all structures, equipment, and cables for fire protection.

2.2 Alternative 1 – Alternate WISS Site

Alternative 1 would provide an alternate site for installation of one WISS camera and associated equipment. This alternative would not result in disturbance to vegetation or

soils as the scoring camera would be mounted on existing tower located at Camera II site. Camera II is an existing YMDS facility and is located approximately $\frac{3}{4}$ mile west of Lantirn Village (Figure 2-1).

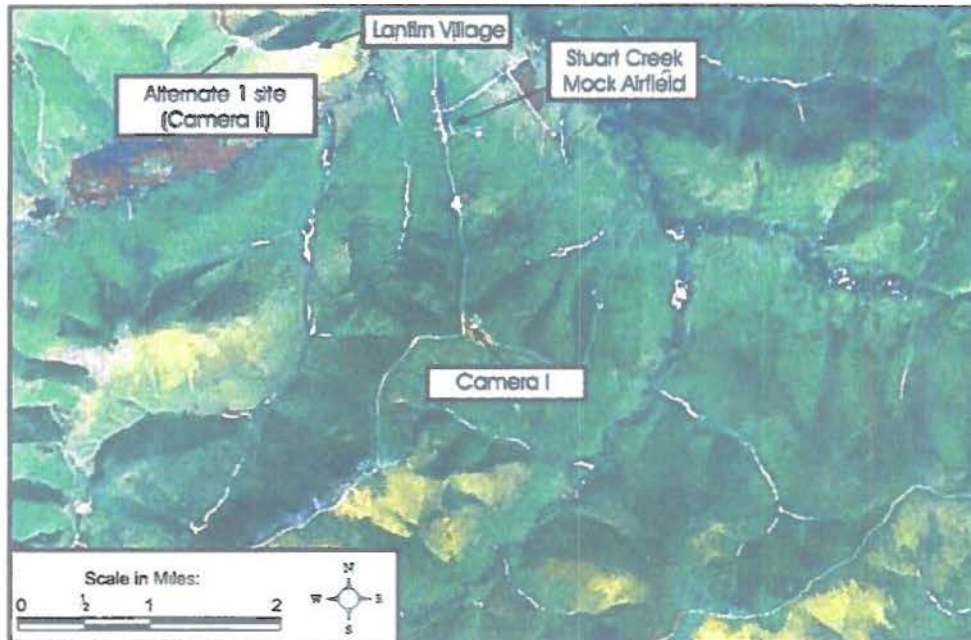


Figure 2-1 – Alternative 1 Location

2.3 No Action Alternative

Under the no action alternative, there would be no changes or modifications to the existing YMDS facilities in the Stuart Creek Impact Area. Live bomb scoring capabilities would not be available with this alternative.

2.4 Other Alternatives Considered but Not Carried Forward for Analysis

Additional sites in the surrounding area were assessed but rejected as not operationally viable due to lack of one or more of the following:

- Lack of clear line-of-sight to the existing target arrays.
- Lack of clear line-of-sight to either a microwave relay tower or to a data link site.
- Lack of existing road access and/or power.

2.5 Alternatives Impacts Matrix

Table 2-5 – Alternatives Impacts Matrix

Resources	Proposed Action/Alternative 1	No Action Alternative
Soils	Proposed Action –Disturbance of 5 cubic feet of soils at each site. Alternative 1 – No disturbance to soils.	No disturbance to soils.
Air Quality	Proposed Action - Minor, short-term impacts to air quality during construction phase from operation of heavy equipment. Alternative 1 – No impacts to air quality.	No impacts to air quality.
Surface Water	No impacts to surface water from either alternative.	No impacts to surface water.
Groundwater	No impacts to groundwater from either alternative.	No impacts to groundwater.
Infrastructure	Proposed Action – WISS upgrades at both sites would give adequate coverage and allow live bomb scoring capabilities. Alternative 1 – WISS upgrade at one site would provide live bomb scoring with limited coverage.	No changes to infrastructure.
Noise	Proposed Action - Minor localized impacts from noise as a result of heavy equipment during the construction phase. Alternative 1 – No impacts from noise.	No impacts from noise.
Biological Resources - Vegetation	Proposed Action – Loss of 0.63 acres of vegetation. Alternative 1 – No impacts to vegetation.	No impacts to vegetation.
Biological Resources - Wildlife	Proposed Action - Minor disturbance to wildlife would occur during construction phase of the project. Alternative 1 – No impacts to wildlife.	No impacts to wildlife.
Biological Resources - Fish	No impacts to fishery resources would likely occur.	No impacts to fish.
Wetlands	Impacts to wetlands could occur if sediment control measures are not utilized during construction of pad.	No impact to wetlands.
Threatened and Endangered Species	No impacts to threatened or endangered species would likely occur.	No impacts to threatened or endangered species.

Table 2-5 – Alternatives Impacts Matrix Cont.

Resources	Proposed Action/Alternative 1	No Action Alternative
Subsistence	No impacts to subsistence activities.	No impacts to subsistence activities.
Cultural Resources	Previous studies indicate a low likelihood for cultural resources occurring in the project vicinity.	No impacts to cultural resources.
Socioeconomic	No impacts to human populations would occur.	No impacts to human populations would likely occur.

3.0 Affected Environment

Section 3.0 describes the existing environment and resource components that would be impacted by the proposed project and the alternatives. The resources discussed in this section are presented as a baseline for comparisons of environmental consequences discussed in Section 4.0.

- Physical Resources, which include general site location, topography, geology, soils, climate, air quality, greenhouse gas emissions, ground and surface water, and infrastructure improvements.
- Biological Resources, which includes vegetation, wildlife, fish, wetlands, and threatened or endangered species.
- Cultural Resources including Archeological and Historical Resources.
- Socioeconomic Factors.

3.1 Physical Resources

3.1.1 General Site Location

3.1.1.1 The proposed project is located in the Stuart Creek Impact Area which is located within the USAG-FWA's YTA approximately 23 miles southeast of Fairbanks and 20 miles northeast of the Eielson Air Force Base. The Stuart Creek Impact Area covers approximately 22,857 acres of the north central portion of the YTA. Lantirn Village and Camera I sites are located on hilltops in the vicinity of Stuart Creek (Figure 1-1 and 1-2). The training area is bound by the Chena River on the north and the Salcha River to the south. Eielson Air Force Base is located on the training area's west border.

3.1.2 Topography

3.1.2.1 The Stuart Creek Impact Area is within the Yukon-Tanana Upland of the Northern Plateau physiographic province. Rounded ridges that extend 500 to 1,500 feet above broad alluvial basins with gentle side slopes characterize the Yukon-Tanana Uplands. Ridge tops are flat with broad indistinct divides separating drainages and are generally between 2,000 and 3,000 feet above mean sea level. Several small streams drain the Stuart Creek Impact Area, including Stuart, Beaver, and Globe creeks.

3.1.2.2 The mock airfield on the Stuart Creek Impact Area is located on a plateau above the valleys containing Stuart Creek and the South Fork of the Chena River at 1,100 feet elevation. Target arrays are located on the valley floor of the broad valley between Stuart Creek and the South Fork of the Chena River. Additional target arrays are located northeast of the mock airfield on the valley floor adjacent to Stuart Creek. Lantirn Village is located west of the Stuart Creek mock airfield at 1,586 feet elevation and Camera I site is located south of the mock airfield at 2,152 feet elevation.

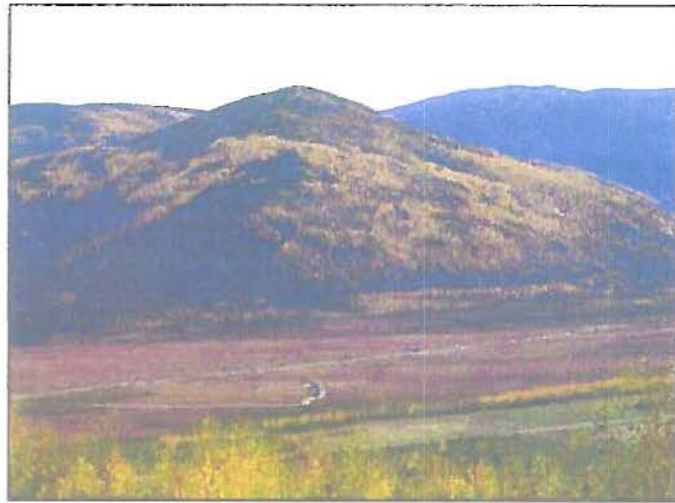


Photo 3-1 – General YTA Topography

3.1.3 Geology, Soils, Permafrost, and Minerals

3.1.3.1 The geology of the area is classified as Precambrian and Paleozoic-age metamorphic rocks of the Yukon-Tanana crystalline complex, formally known as the Birch Creek Shist. The rocks have been intruded by igneous rocks of Mesozoic and Cenozoic age referred to as the Eielson plutons. The igneous and metamorphic rocks have been overlain by younger sedimentary Pleistocene and Holocene loess deposits. These deposits originated from the floodplain of the Tanana River and the foothills of the Alaska Range. The loess varies in depth from a few inches on the ridge tops to 40 to 100 feet in the valleys.

3.1.3.2 Soils in the upland areas consist of well-drained silty soils, chiefly loess over bedrock, that varies in depth. Upland soils found on south-facing slopes are generally better drained than those found on north-facing slopes. Soils on north facing slopes usually are underlain by discontinuous permafrost. Soils in the alluvial plains of the streams consists of poorly drained silts and loams typically overlying stratified sands, silts, and gravel. Depressions in the alluvial plains are often interbedded with thick peat layers and usually underlain by continuous permafrost. Seasonal frost depths range from 5 to about 12 feet in the region. Soils in the proposed project area are upland soils and composed primarily of silt.

3.1.3.3 YTA is in the discontinuous permafrost zone of Alaska where perennially frozen ground is widespread. The thick layers of peat typical of both north slopes and drainage bottoms/depressions are underlain by permafrost, while south slopes are generally free of permafrost (BLM and U.S. Army 1994).

3.1.3.4 The Stuart Creek Impact Area has no known potential for coal, oil shale, phosphate, sodium, potassium, or gilsonite resources, and has low potential for oil and gas resources. The area has moderate potential for geothermal resources, with a commercially developed hot springs located approximately 28 air miles away. The Impact Area has some potential for various mineral deposits such as gold, tin, silver, zinc,

lead, antimony, bismuth, and tungsten. Placer mining for gold has occurred on the South Fork of the Chena River.

3.1.4 Climate

3.1.4.1 Eielson Air Force Base and the YTA has the northern continental climate of Interior Alaska, which is characterized by short, moderate summers, long cold winters, and low precipitation and humidity. The mean annual precipitation in the area is 11.2 inches, much of which comes as snow. The coldest month is January, with an average temperature of minus 10.3°F and an average minimum temperature of minus 19.2°F; the warmest month is July, with an average temperature of 61.7°F and an average maximum of 71.9°F. The minimum amount of daylight is shortest in December with 3 hours 47 minutes of available daylight.

3.1.4.2 May and June have the highest winds, with average wind speeds of 7.7 and 7.2 miles per hour, respectively. During most of the year, the prevailing wind direction is from the north at an average of 5.15 miles per hour. However, in June and July, the wind direction is typically from the southwest.

3.1.5 Air Quality

3.1.5.1 Air quality is generally good at Eielson as well as in the YTA. The Fairbanks North Star Borough is in attainment for carbon monoxide (with a maintenance designation), but is in non-attainment for PM_{2.5}. The Proposed Action is also within the non-attainment boundary for PM_{2.5}. The Clean Air Act designates areas as attainment, non-attainment, maintenance, or unclassified with respect to national ambient air quality standards (NAAQS). Non-attainment areas are locales that have recently violated one or more of the NAAQS and must satisfy the requirements of State or Federal Implementation Plans (SIPs or FIPs) to bring them back into conformity with the applicable air quality standards. Significant temperature inversions during winter, coupled with low winds and a restricted geographic basin often serve to concentrate air pollutants in the Fairbanks-North Pole area. Pollutants of concern include carbon monoxide, emitted primarily from motor vehicles, and particulates, which are the result of combustion of a variety of fossil fuel types. Major particulate emission sources include coal burning power plants, residential wood stoves, forest fires, vehicle emissions, and road dust.

3.1.5.2 The Environmental Protection Agency has indicated that particulate matter smaller than 2.5 microns are a potential concern for Eielson AFB. At EPA's direction the base is monitoring that parameter and will provide data to them on an annual basis.

3.1.6 Greenhouse Gas Emissions

Greenhouse gases are a byproduct of fossil fuel combustion. The activities associated with the Proposed Action that have a potential to increase fossil fuel consumption to include construction and increased production of electric power.

3.1.7 Ground and Surface Water

3.1.7.1 Groundwater is typically found in small quantities in upland areas in fractures and joints of underlying bedrock. The lack of groundwater in large quantities is attributed to high topographic relief and the well-drained soils found in the area. Groundwater is available in moderate to large quantities from the gravel deposits found in the alluvial plains of stream valleys. The major source of recharge for aquifers is precipitation that enters the ground through infiltration.

3.1.7.2 Most small streams in the area are low-gradient feeder streams that characteristically exhibit low discharges during the winter months and peak discharges during the summer months. The entire Yukon-Tanana Upland area lies within the Yukon River catchment basin. All surface waters in the vicinity of the proposed project area and Stuart Creek mock airfield are tributaries of the Chena River. Streams in the Impact Area include the South Fork of the Chena River, and its tributaries: Stuart Creek, Beaver Creek, and Globe Creek. Hydrological studies have not been performed within the Impact Area; however, the hydrology is thought to follow the pattern typical of interior Alaska streams of non-glacial origin. Stream flows resulting from meltwater runoff should be highest in spring and early summer, and lowest in winter. Portions of smaller drainages may freeze solid in winter and significant aufeis may accumulate. Discharge measurements on the Chena River reveal that highest flows occur during May, tapering to about one-half of the May flow rate from June through September. Flows then generally decline through the winter reaching a yearly low during March. Many small streams throughout the area freeze solid during the winter months.

3.1.7.3 The mean annual flow of the Chena River measured at Fairbanks, Alaska is 1,600 cubic feet per second (cfs). Flows in the tributaries within the Impact Area have not been measured, but have been estimated at less than 10 cfs each. Thus, each tributary contributes a small but measurable percentage to total runoff from the region.

3.1.7.4 Due to lack of human development and activity on the training area, surface waters on Yukon Training Area are relatively pristine. Water bodies originating within YTA flow into the Chena River. The waters meet all primary drinking water standards, and iron is the only parameter to exceed the Alaska state secondary drinking water standards. All of YTA's surface waters have low rates of primary and secondary productivity and high water quality (USAG-AK INRMP 2007). Because streams within the Stuart Creek Impact Area are not glacial in origin, sediment loading is expected to be low and restricted to high flow rate events.

3.1.8 Infrastructure Improvements

3.1.8.1 The infrastructure improvements found within the general area consist of semi-improved roads and overhead power. Stuart Creek Impact Area has a mock airfield, target arrays and YMDS sites containing various training and monitoring equipment (UMTE's, equipment shelters, televised ordnance scoring system, microwave repeaters etc.).

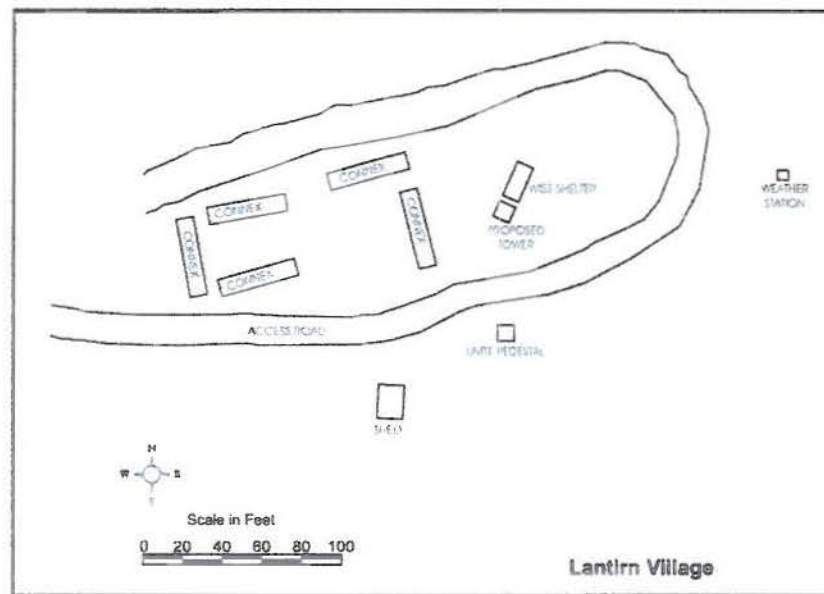


Figure 3-1 Lantirn Village Plot Plan

3.1.8.2 Lantirn Village consists of a roughly 2.4 acre site with semi-improved road access and overhead power. The site contains a WISS shelter, five (5) 40' connex containers, UMTE pedestal, shelter, and a weather monitoring station (Figure 3-1).

3.1.8.3 Camera I site consists of a roughly 1 acre site with semi-improved road access and overhead power. The site contains a WISS shelter, solar panels and stand, and 3 propane fuel tanks (Figure 3-2).

3.1.8.4 The Alternative 1 site (Camera II) consists of a roughly 4.3 acre site with semi-improved road access and overhead power. The site also contains a viewing stand, UMTE pedestal, televised ordnance scoring system, above ground fuel tanks, equipment shelters, and a communications tower.

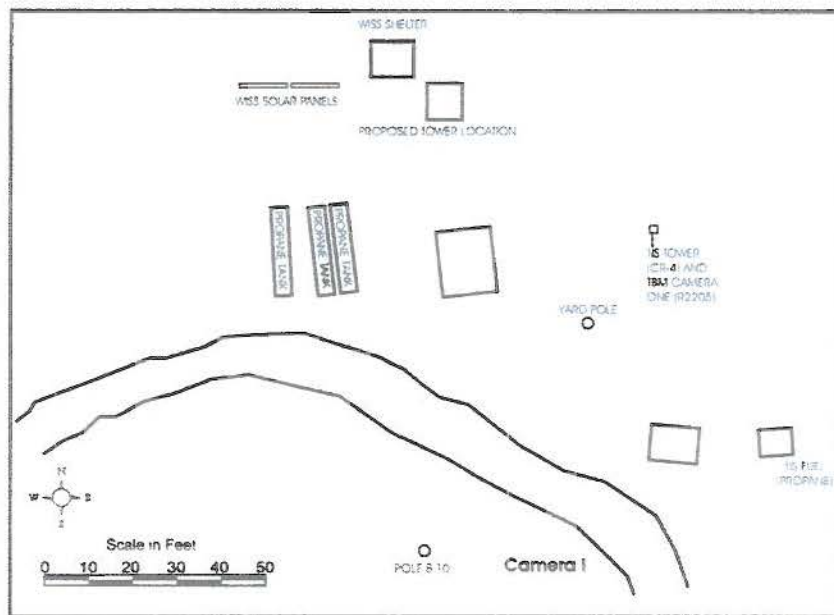


Figure 3-2 Camera I Plot Plan

3.1.8.4 The Alternative 1 site (Camera II) consists of a roughly 4.3 acre site with semi-improved road access and overhead power. The site also contains a viewing stand, UMTE pedestal, televised ordnance scoring system, above ground fuel tanks, equipment shelters, and a communications tower.

3.2 Biological Resources

3.2.1 Vegetation

3.2.1.1 The northern boreal forest of Interior Alaska is a fire dependent ecosystem. It is a mosaic of vegetation types made up of a few primary species of wide ecological amplitude that respond to specific combinations of physical characteristics of a site. Topographical characteristics of sites, such as slope and aspect, influence physical characteristics such as microclimate, soil temperature, and moisture regimes, which in turn influence the type of vegetation that will be found there.

3.2.1.2 Upland plant communities found within the Stuart Creek Area include the following general types:

- Upland Broadleaf Forest: This forest type is commonly found on south-facing slopes that are well-drained sites with little permafrost. Tree species include white spruce, paper birch, quaking aspen, and balsam poplar. Willows, alder, wild rose, blueberry, and highbush cranberry are common shrubs.
- Upland Mixed Forest: Mixed forests usually develop from stands of pure or nearly pure broadleaf trees (Upland Broadleaf Forest) such as birch. As the slower growing spruce reach the canopy, the relatively short-lived birch and other broadleaf species begin to mature and die.
- Upland Needleleaf Forest: Mixed forests eventually develop into stands of pure

spruce (Upland Needleleaf Forest) as the broadleaf trees, whose seedlings are relatively shade intolerant, continue to drop out without replacement.

- Upland Scrub. Moderate to heavy wildfire will return the other upland forest types to an open canopy upland scrub vegetation type. Continued succession results in a relatively pure stand of young broadleaf trees of an Upland Broadleaf Forest Type.

3.2.1.3 In wetland areas underlain by permafrost in the Stuart Creek Impact Area, the vegetation types listed below are found:

- Lowland Needleleaf Forest: Lowland Needleleaf Forest tends to occur on poorly drained sites underlain by permafrost. Black spruce forest is common in low-lying areas, drainage basins, and north-facing slopes. Black spruce occurs in closed canopy stands and as scrubby open stands of dwarf trees. Other species commonly occurring in this forest type include tamarack, blueberry, lowbush cranberry, labrador tea, and feather moss. Closed canopy black spruce forest tends to return to its original composition after fire (Viereck et al., 1992). In the absence of fire, closed canopy black spruce may transition into scrubby open stands of black spruce as the moss layer thickens. A thicker mat of moss tends to better insulate soils, causing the permafrost level to rise and the soil to be colder and wetter.
- Lowland Low Scrub: Lowland Low Scrub also occurs on poorly drained sites underlain by permafrost. Open Low Shrub Birch-Willow Shrub may represent a stable climax if moisture conditions are constant. A drop in the water table may favor tree invasion, and a rise in the water table might allow tussocks or ericaceous shrubs to invade, in which case an Open Low Mixed Shrub-Sedge Tussock Bog would result.

3.2.1.4 The plant community in the vicinity of the wetland sites consists primarily of black spruce, dwarf birch, willow, sedges, and grasses.

3.2.1.5 The proposed project and alternative 1 sites are located in uplands with vegetation consisting of white and black spruce, paper birch, quaking aspen, and balsam poplar. Willows, alder, wild rose, blueberry, and highbush cranberry are common shrubs.

3.2.2 Wildlife

3.2.2.1 Wildlife species in the surrounding areas are typical of those found in Interior Alaska. Large mammals that are likely to be found in nearby habitat include moose, black bear, and grizzly bear. Other mammals include red fox, snowshoe hare, red squirrel, lynx, marten and coyote. Gray wolves and wolverines are transient to the area.

3.2.2.2 Moose are an important big game species in the Stuart Creek Impact Area. Moose habitat in the valley bottoms in the Stuart Creek Impact Area support more than 1.6 moose per square mile. Because it is a restricted use area, wildlife densities may be higher within the Stuart Creek Impact Area because hunting is not allowed in this area. Therefore, this area may be important as a refuge for animals during the hunting season, and may serve to replenish stocks reduced by hunting in surrounding areas.

3.2.2.3 Large and small game hunting is very popular within the USAG-FWA's YTA (non-restricted areas). On average, almost 2,200 grouse, 300 ptarmigan, 7 black bears and

over 50 moose are harvested in the USAG-FWA's YTA, each year. Snowshoe hares, red squirrels, and ducks are also very popular species harvested in this area.

3.2.2.4 Breeding Bird Surveys have been conducted on USAG-FWA's YTA since 1982. Two major migration routes extend through the Northern Interior Region of Alaska. USAG-FWA's YTA lies within one major migration route with waterfowl and raptors migrating in the spring and fall (U.S. Army EIS Alaska Lands Withdrawal Renewal, January 1999).

3.2.2.5 Migratory birds common to interior Alaska including gulls, swallows, thrushes, sparrows, and warblers, can be found in the area. Non-migratory birds include ravens, jays, chickadees, songbirds, woodpeckers, grouse, and ptarmigan. Raptors include bald and golden eagles, hawks, kestrels, great horned owls, boreal owls, and hawk owls.

3.2.3 Fish

3.2.3.1 No studies of fish or aquatic habitats have been done within the Stuart Creek Impact Area. A study done on the South Fork of the Chena River found all age groups of arctic grayling, round whitefish, longnose suckers, and slimy sculpins. King salmon have been observed in the South Fork of the Chena River below Martin Creek, and it is not known whether they continue upstream into the Impact Area.

3.2.3.2 The Alaska Department of Fish and Game lists the South Fork of the Chena River as an anadromous fish stream. All species have a tendency to move out of upstream areas, into deeper waters during the winter, and thus are not expected to be present during the winter months. All of the streams in the Impact Area are thought to be relatively productive from a fisheries standpoint. The Chena River supports a large recreational fishery, primarily targeting arctic grayling. No data exists to determine the extent to which streams in the impact area contribute to this fishery.

3.2.4 Wetlands

3.2.4.1 It is the goal of the USAF and USAG-FWA to protect wetlands from loss or degradation to the maximum extent possible. Wetlands are recognized for their importance as a critical fish and wildlife habitat. Wetlands are also valued for their ability to function as a natural buffer for water quality maintenance.

3.2.4.2 In USAG-FWA's YTA, wetland can be divided into marshes and shrub wetland. Shrub wetland, also known as bogs, muskeg, and low brush, are associated with slightly higher relief on the edges of marshes, and in poorly drained basins and depressions with cold, waterlogged soils (USAG-FWA INRMP 2007).

3.2.4.3 The USAG-FWA has classified wetlands on lands that they manage in Alaska as having "higher-function" or "other" (BAX/CACTF EIS, 2006). High-function wetlands include riverine areas, permanent emergent areas, semipermanent emergent areas, riparian areas, and other sensitive wildlife habitats that may lie within wetland areas. Wetlands considered low-function are all other remaining types that occur on USAG-

FWA lands.

3.2.4.4 There would be no impacts to wetlands with the Proposed Action and Alternative 1.

3.2.5 Threatened or Endangered Species

There are no known threatened or endangered species (vegetation or wildlife) within the USAG-FWA's YTA. Species of concern listed by the State of Alaska that have been sighted on YTA lands include the American peregrine falcon, olive-sided flycatcher, gray-cheeked thrush, Townsend's warbler, and blackpoll warbler. Sensitive species include Osprey and Trumpeter Swan (Alaska Army Lands Withdrawal Renewal-Final Legislative EIS, 1998).

3.3 Cultural and Historic Resources

3.3.1 In 1984, as part of the development of a Historic Preservation Plan (HPP) for Army lands in the State of Alaska, the US Army began a detailed inventory of all archeological and historic sites contained on their lands. In 1986, the Sixth Infantry Division (Light) completed the HPP and identified the USAG-FWA's YTA as having moderate to low potential to contain archeological sites. In 2004-2005 additional surveys were conducted along road systems in the YTA that were outside of the Stuart Creek Impact area. These surveys were in conjunction with Eielson Air Force Base power and fiber projects that occurred in the area. The results of these surveys were published in USAG-FWA's annual reports. No significant cultural resources were identified.

3.3.2 A Cultural Resource Survey was not conducted for the proposed project due to its location in a restricted use area (impact area).

3.4 Recreational Resources and Subsistence Use

Recreation in the USAG-FWA's YTA includes hunting, trapping, off-road vehicle use, and snowmobile use (BLM, 1994). The Stuart Creek Impact Area is a restricted access area and is therefore closed to recreational hunting, subsistence use, and other activities.

3.5 Socioeconomic Factors

The area surrounding the proposed project is utilized primarily by the military as a transportation corridor to access military facilities located within the USAG-FWA's YTA. The Stuart Creek Impact Area is closed to the general public. The proposed WISS upgrade is not located near any population centers that are disproportionately inhabited by minorities or low income groups.

4.0 Environmental Consequences

Section 4 is organized by resources, with the environmental consequences evaluated for each alternative. This discussion will provide a scientific and analytic basis for the comparisons of the alternatives and describes the probable consequences (impacts and effects) of each alternative on selected environmental resources.

4.1 Physical Resources

4.1.1 Topography

There would be no effect on the regional topography by implementing the proposed action, alternative 1, or the no action alternative.

4.1.2 Geology

There would be no effect on the geology of the area by implementing the proposed action, alternative 1, or the no action alternative.

4.1.3 Soils

4.1.3.1 Proposed Action

4.1.3.1.1 Construction of the tower base and installation of the tower guy wires would disturb an estimated 5 cubic feet of soils at each site for a total of 10 cubic feet of soils. The Proposed Action would result in minor impacts to soils.

4.1.3.2 Alternative 1

Under alternative 1, WISS equipment would be added to existing tower and would not result in disturbance to soils.

4.1.3.3 No Action Alternative

There would be no disturbance to soils under this alternative.

4.1.4 Climate

There would be no effect on climate by implementing the proposed action, alternative 1, or the no action alternative.

4.1.5. Air Quality

4.1.5.1 Proposed Action

Implementation of the proposed action would result in temporary localized reductions in air quality during the period of construction primarily from heavy equipment emissions. The impacts to air quality would be minor and short in duration.

4.1.5.2 Alternative 1 and No Action Alternative

The air quality would remain constant and would not temporarily diminish under the no action alternative.

4.1.6 Greenhouse Gas Emissions

Greenhouse gases are a byproduct of fossil fuel combustion. The activities associated with the Proposed Action that have a potential to increase fossil fuel consumption to include construction and increased production of electric power. Eielson Air Force Base supplies electric power to the sites generated by the coal burning power plant at the base. The electric power required to operate the WISS system is negligible and would have minor impacts to greenhouse gas emissions due to increased coal usage. Eielson Air Force Base is currently implementing energy conservation measures and is in the process of developing alternative energy systems (wind and solar) at several off-base sites to help mitigate the effects of greenhouse gas emissions.

4.1.7 Ground and Surface Water

4.1.7.1 Proposed Action

4.1.7.1.1 When ground is disturbed and the natural vegetative mat is removed there is always a risk of siltation during heavy rain events that sometimes occur in the summer season. Control of sediment is generally accomplished through the use of silt fences. In addition, disturbed soils can be revegetated through seeding. Both of these measures would be employed during and at completion of construction at the two proposed project sites.

4.1.7.1.2 The site disturbance under the proposed action is approximately 200 square feet, therefore a submission of a Notice of Intent (NOI) and Storm Water Pollution Prevention Plan is not required.

4.1.7.2 Alternative 1 and No Action Alternative

There would be no impacts to groundwater or surface water.

4.1.8 Infrastructure improvements

4.1.8.1 Proposed Action

The proposed upgrade would give the AF live bomb drop scoring capability with desired coverage (two different angles) of the Stuart Creek Impact Area thereby providing enhanced proficiency training to fighter pilots.

4.1.8.2 Alternative 1

This alternative would result in the installation of one WISS camera on an existing tower and would give the AF live bomb drop scoring capability with limited coverage of the

Stuart Creek Impact Area

4.1.8.3 No Action Alternative

Selection of this alternative would not result in improvements to the existing infrastructure and would not give the AF live bomb drop scoring capability.

4.2 Biological Resources

4.2.1 Vegetation

4.2.1.1 Proposed Action

The installation of the tower base and guy wires would disturb 100 square feet of grass vegetation at each site. An additional 0.63 acres of vegetation would be disturbed with the clearing of vegetation for wildfire protection of Lantirn Village. Camera I site currently has vegetation cleared within 100 feet of all structures for wildfire protection. The impacts to vegetation would be minor within the context of the project area.

4.2.1.2 Alternative Action 1 and No Action Alternative

There would be no loss of vegetation with this alternative.

4.2.2 Wildlife

4.2.2.1 Proposed Action

4.2.2.1.1 There may be the possibility of minor disruptions to wildlife movement in the area during construction phase. Increased activities such as operation of heavy equipment could result in temporary displacement of wildlife. However, these impacts would be minor and would be limited in duration and scope to the construction phase of the project.

4.2.2.1.2 In interior Alaska, the U.S. Fish and Wildlife Service has designated primary migratory bird breeding and nesting season to be from May 1 through July 15, inclusive of these dates. Activities during construction must comply with the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act. This project would not result in intentional removal or "intentional take" of a migratory bird or an active nest. However, there is a low probability that this project may inadvertently cause accidental or "incidental take" of migratory birds. This project is allowed "incidental take" as authorized by the Defense Authorization Act of 2003 because it meets the definition of a military readiness activity as defined by the DOD MBTA Final Rule (30 March 2007). Although "incidental take" is authorized for this project, the following measures will be implemented as required by the DOD MBTA Final Rule and a Memorandum of Understanding (MOU) between DOD and USFWS to reduce the risk of "take"; however, not at the expense of diminishing the military readiness activity:

1. This project will to the greatest extent practicable avoid clearing vegetation during the USFWS Region 7 guidelines for south-central and interior Alaska (1

May through 15 July) as described in the 2007-2011 USAG Alaska INRMP. Every practicable attempt will be made to begin vegetation clearing activities prior to 1 May.

2. During the delineation of the project site boundaries, any visible migratory bird or eagle nests, including ground nests, will be flagged or otherwise identified so the equipment operator can avoid disturbing the vegetation holding the nest.

3. Immediately prior to clearing, the area will be resurveyed to locate any migratory birds, bald or golden eagles or their nests. Any active nest locations will be flagged or otherwise identified to the equipment operator for avoidance.

4. During clearing the equipment operator will pay attention and avoid any visible nests or birds.

4.2.2.1.3 Avian fatalities may occur as a result of collisions with tower and guy wires. Studies have shown however, that avian fatality is substantially reduced with towers less than 75 feet in height (Kerlinger, P. Standardizing methods and metrics for quantifying avian fatalities at communication towers 2000). The proposed towers would be 40-feet tall.

4.2.2.2 Alternative 1

There would be no disruption to wildlife as WISS equipment would be mounted on existing tower and would not require operation of heavy equipment. There would be no change in avian mortality under this alternative. It is unknown if avian mortality is occurring at this site presently as the result of tower collisions.

4.2.2.3 No Action Alternative

No other impacts to wildlife are projected under this alternative.

4.2.3 Fish

4.2.3.1 Proposed Action, Alternative 1, and No Action Alternative

There would be no impact to fish or fish habitat from this alternative.

4.2.4 Wetlands

4.2.4.1 Proposed Action, Alternative 1, and No Action Alternative

There would be no loss or impacts to wetlands with this alternative.

4.3 Threatened or Endangered Species

No known threatened or endangered species inhabit the area.

4.4 Cultural and Historic Resources

According to the 1986 Historic Preservation Plan there are no known archeological, cultural, or historic resources located on or near the proposed project area. Further project specific surveys have not been conducted in the Stuart Creek Impact area due to the safety concern for unexploded ordnance that may be encountered. In the event any signs of cultural or historic resources were encountered during construction the Fort Wainwright Archaeologist would be notified immediately and all activities would cease until a professional archeologist evaluated the finding.

4.5 Recreational Resources and Subsistence Use

4.5.1 Proposed Action, Alternative 1, and No Action Alternative

The Stuart Creek Impact Area is a restricted access area and is therefore closed to recreational hunting, subsistence use, and other activities. There would be no impacts to recreational resources or subsistence use.

4.6 Socioeconomic Factors

4.6.1 Proposed Action, Alternative 1, and No Action Alternative

The area surrounding the proposed project is utilized primarily by the military as a transportation corridor to access military facilities located within the USAG-FWA's YTA. The Stuart Creek Impact Area is closed to the general public. The proposed WISS upgrade is not located near any population centers that are disproportionately inhabited by minorities or low income groups. There would be no socioeconomic impacts under these actions.

4.7 Environmental Justice

4.7.1 Environmental justice, as it pertains to the NEPA process, requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. To accomplish these requirements the Air Force must conduct an environmental justice analysis of potential impacts that may result from the proposed actions.

4.7.2 The site of the proposed project is located on federal lands designated for military operations. The Stuart Creek Impact Area is located in an area that is restricted to military activities only, with no public access allowed. The closest residential area to this site is Moose Creek, approximately 25 miles to the west. This residential area does not exhibit characteristics of low-income or minority populations that are not exhibited in the Fairbanks area population as a whole. Similarly, no native claims or allotments are located within a 10-mile radius of the project area. Based on the environmental impacts identified in this EA and on a corresponding environmental

justice analysis, it is felt that no disproportionate impact to minority or low-income populations would occur from implementation of this project.

4.8 Unavoidable Adverse Impacts

Table 4-8 - Unavoidable Adverse Impact

Action	Unavoidable Adverse Impact
Proposed Action	<ul style="list-style-type: none">• Tower base construction will result in loss of 0.63 acres of upland vegetation.• Tower installation will result in disturbance of 10 cubic feet of soils.
Alternative 1	<ul style="list-style-type: none">• There would be no unavoidable adverse impacts associated with this alternative.
No Action Alternative	<ul style="list-style-type: none">• There would be no unavoidable adverse impacts associated with this alternative.

4.9 Mitigation

4.9.1 The project design for the proposed WISS upgrade would incorporate best management practices that are designed to mitigate impacts to the environment. Design aspects include:

- If bird habitat would be impacted, construction would occur before May 1 and after July 15; and
- Tower would be restricted to 40 feet in height to reduce potential for avian fatalities.

5.0 Cumulative Impacts and Irreversible and Irretrievable Commitments of Resources

5.1 Cumulative Impacts

5.1.1 Definition

5.1.1.1 The NEPA process requires that the issue of cumulative impacts be addressed. This section provides (1) a definition of cumulative effects, (2) a description of past, present, and reasonably foreseeable actions relevant to the cumulative effects analysis, and (3) an evaluation of cumulative effects potentially resulting from these interactions. For the purposes of this cumulative impacts analysis, the geographic region of interest that would be considered is all Army rangelands in interior Alaska.

5.1.1.2 The Council on Environmental Quality (CEQ) has stated in their NEPA regulations (1508.7) that "Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to past,

present, and reasonably foreseeable future actions... and...can result from individually minor but collectively significant actions taking place over a period of time." Cumulative effects are most likely to arise when a relationship or synergism exists between a proposed action and other actions expected to occur in a similar location and/or during a similar time period. Actions overlapping with or in close proximity to the proposed action would be expected to have more potential for a relationship than actions that may be geographically separated. Similarly, actions that coincide, even partially, in time would tend to offer a higher potential for cumulative effects.

5.1.2 Past and Present Actions Relevant to the Cumulative Effects Analysis

5.1.2.1 In conducting a cumulative impacts analysis, one must first define the geographic region within which the analysis will be conducted. For the purpose of this EA, it is deemed appropriate that it be focused on military lands in the interior of Alaska. There are approximately 1.5 million acres of land set aside for military use that is actively used by the US Army and the USAF and, except for the species referenced above; it is unlikely that any impacts associated with this project would have any affect beyond interior Alaska.

5.1.2.2 Impacts associated with the construction and expansion of military facilities in Alaska have been addressed in several previous environmental documents. These include Fort Wainwright Resource Management Plan and Final EIS, U.S.D.I., Bureau of Land Management, 1989; Alaska Military Operations Areas-EIS (U.S. Air Force 1995); Alaska Army Lands Withdrawal Renewal-Final Legislative EIS, U.S. Army 1998; National Missile Defense (NMD) Final EIS, 2000; Integrated Natural Resources Management Plan, Eielson Air Force Base, 2003; and Integrated Natural Resources Management Plan 2006, U.S. Army Alaska Volume 3. In an Army NEPA document completed in 2004, Transformation EIS, U.S. Army Alaska, the Army conducted an extensive analysis of cumulative impacts that have occurred as a result of military activities in interior Alaska. Many of the resource issues that were analyzed in the Army EIS are issues that pertain to this EA including wetlands, surface water, vegetation, and wildlife. The conclusions drawn in that document were that, for these resources, cumulatively significant impacts would not likely occur. The Army maintained that a combination of action specific mitigation, conducting monitoring programs, and ecosystem management would ensure that this circumstance is achieved. As new projects are proposed and built, subsequent analyses will be conducted to continually reconsider this question.

5.1.2.3 Eielson has in the past relied heavily on Army range lands for the infrastructure support and training of its pilots. This reliance will certainly continue. The actual areas on the ground that are used or affected are typically only a small fraction of the total acreages of these ranges. The total number of acres of Army range lands in interior Alaska that the Air Force has directly impacted (actual footprint) by their construction and maintenance of facilities has been estimated at 548 acres. These lands represent a very small fraction of the total lands set aside for military use in interior Alaska. The current proposal to upgrade the WISS at Lantirn Village and Camera I would not result

in impacts to wetlands in the USAG-FWA's YTA and would impact less than 0.63-acres of upland vegetation.

5.1.3 Reasonably Foreseeable Future Actions

5.1.3.1 In addition to past and present actions that could cumulatively result in significant impacts, the analysis should also consider projects that are planned in the foreseeable future. Eielson's Base General Plan lists projects planned for construction as far as 5 years ahead. However, the status of these projects often change and it is hard to predict accurately more than 2 or 3 years ahead which projects would be constructed.

5.1.3.2 Most of the projects scheduled for completion on Eielson and in the ranges during the next 2 to 3 years are associated with the build up for the RED FLAG-Alaska training exercises. These projects include numerous facility renovations, including office buildings, hangars, and aircraft parking ramps. Most of these projects would be in the main cantonment area of the base and in conjunction with areas that have been previously impacted through development. These projects have been tiered to a programmatic EA entitled, Omnibus Base Construction in the Developed Portion of the Base Programmatic Environmental Assessment. Use of this programmatic EA for NEPA analysis of a proposed project requires as a prerequisite that the action(s) not result in cumulatively significant impacts. On Air Force leased Army range lands a few small facility upgrade projects are planned.

5.1.3.3 The USAG-FWA has ongoing and future projects that have the potential for contributing to potential cumulative impacts to military lands in interior Alaska. The recently completed Environmental Assessment for the Donnelly

Training Area East Mobility and Maneuver Enhancement, contains a recent cumulative effects analysis of Army activities in interior Alaska. They summarized cumulative impacts as they would occur relative to a broad range of resources including wetlands, fish and wildlife habitat, surface water, subsistence, public access and recreation, fire management, soils, and vegetation. They concluded that all related impacts would be minor and/or localized and not cumulatively significant.

5.1.4 Cumulative Impacts Analysis Summary

To date all cumulative impact analyses that have been completed in Eielson's NEPA documents for a wide range of small and large projects have arrived at the conclusion that cumulative impacts from base activities have not reached the threshold of significant. The proposed action would not result in the loss of wetlands but would result in the loss of 0.63 acres of upland vegetation. Thus it is believed that Eielson's current activities associated with the installation of towers and WISS upgrade would not likely result in significant cumulative impacts.

5.2 Irreversible and Irretrievable Commitments of Resources

The NEPA CEQ regulations require environmental analyses to identify "...any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented" (40 CFR Section 1502.16). Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects the uses of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) which cannot be replaced within a reasonable time frame. Building construction material such as gravel and the gasoline usage for construction equipment would constitute the consumption of nonrenewable resources. These resources are currently plentiful and the amount of these resources required by this project would be minimal. There would be no irreversible resource commitments associated with the proposed action.

6.0 List of Preparers

6.1 Writers

6.1.1 Lyle D. Gresehover wrote most sections of this EA. Lyle has 16 years of experience in environmental science and natural resource management.

6.1.2 James Nolke wrote selected portions of the EA and reviewed and edited all portions of the EA.

6.2 Scoping Participants

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